



FEDERAL INFORMATION
PROCESSING STANDARDS PUBLICATION

1980 SEPTEMBER 4

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards



Minimal BASIC

CATEGORY: SOFTWARE STANDARD
SUBCATEGORY: PROGRAMMING LANGUAGE

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NO. 68

1980

Jordan J. Baruch, Assistant Secretary for Productivity,
Technology and Innovation
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, Director

Foreword

The Federal Information Processing Standards Publication Series of the National Bureau of Standards is the official publication relating to standards adopted and promulgated under the provisions of Public Law 89-306 (Brooks Act) and under Part 6 of Title 15, Code of Federal Regulations. These legislative and executive mandates have given the Secretary of Commerce important responsibilities for improving the utilization and management of computers and automatic data processing in the Federal Government. To carry out the Secretary's responsibilities, the NBS, through its Institute for Computer Sciences and Technology, provides leadership, technical guidance and coordination of Government efforts in the development of guidelines and standards in these areas.

Comments concerning Federal Information Processing Standards Publications are welcomed and should be addressed to the Director, Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, DC 20234.

James H. Burrows, Director
Institute for Computer Sciences
and Technology

Abstract

This FIPS PUB announces the adoption of the American National Standard for Minimal BASIC as a Federal Standard. This standard defines the syntax of the Minimal BASIC programming language and the semantics for its interpretation. It is to be used by implementors as the reference authority in developing high level language processors and by other computer professionals. Minimal BASIC is recommended for fast creation of computer programs to solve small nonrecurring problems, particularly in time-sharing environments, and for the casual programmer when ease of learning and use are most important.

KEY WORDS: BASIC; data processing; Federal Information Processing Standards Publication; interactive programming; programming language; software; standards; time-sharing.

Nat.Bur.Stand. (U.S.), Fed.Info.Process.Stand.Publ.(FIPS PUB) 68, 4 pages.
(1980)
CODEN:FIPPAT

For sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

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NO. 68

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FIPS PUB 68

Federal Information Processing Standards Publication 68

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ANNOUNCING THE STANDARD FOR

Minimal BASIC



Federal Information Processing Standards Publications (FIPS PUBs) are issued by the National Bureau of Standards pursuant to the Federal Property and Administrative Services Act of 1949, as amended, Public Law 89-306 (79 Stat. 1127), Executive Order 11717 (38 FR 12315, dated May 11, 1973), and Part 6 of Title 15 Code of Federal Regulations (CFR).

1. Name of Standard. Minimal BASIC (FIPS PUB 68).
2. Category of Standard. Software Standard, Programming Language.
3. Explanation. This publication announces the adoption of American National Standard for Minimal BASIC, X3.60-1978, as a Federal Standard. The American National Standard defines the syntax of the Minimal BASIC Programming Language and the semantics for its interpretation. The standard is used by implementors as the reference authority in developing compilers, interpreters, or other forms of high level language processors and by other computer professionals who need to know the precise syntactic and semantic rules adopted by the American National Standards Institute (ANSI). It is not the primary purpose of the standard to explain the language to the beginning or casual user. This Federal Standard specifies the set of features that must be supported by a language processor designated as BASIC.
4. Approving Authority. Secretary of Commerce.
5. Maintenance Agency. U. S. Department of Commerce, National Bureau of Standards, (Institute for Computer Sciences and Technology).
6. Cross Index. American National Standard X3.60-1978, Minimal BASIC.
7. Related Document. Federal Property Management Regulation 101-36.1305, Implementation of Federal Information Processing and Federal Telecommunications Standards into Solicitation Documents, Software Standards.
8. Objectives. The Federal standardization of BASIC has two objectives: (1) to improve the programming productivity of BASIC users by making it sufficient to learn only one set of rules in order to program successfully on different computer systems; and (2) to reduce software costs by making it easier to transfer programs written in BASIC among different computer systems, including replacement systems. The first objective is especially important in view of BASIC's traditional role as a language whose use should incur only a small investment of learning time.

Government-wide attainment of the above objectives depends upon the widespread availability and use of high level programming languages to the exclusion of other programming languages such as assembly languages. Further, the availability of standard languages provides substantially better economy and efficiency in computer utilization. Federal Standard Minimal BASIC is for use by all Federal agencies for programming applications, particularly those where quick results are desired, and for use by those who develop or acquire BASIC programs for government use.

9. Applicability.

a. Federal standards for high level programming languages shall be used for computer applications and programs that are developed or acquired for government use. To facilitate this requirement, a family of Federal high level programming language standards is provided. The use of specific programming languages is limited to the approved Federal Information Processing Standards languages. Federal Standard Minimal BASIC is hereby designated as one of the high level programming languages standardized and approved for government-wide use.

b. Every Federal department and agency that establishes a requirement for BASIC must use Federal Standard Minimal BASIC as the basis for specification.

c. Every Federal department and agency shall establish the necessary guidelines for the implementation and use of this standard.

d. Every Federal department and agency should recognize that Federal Standard Minimal BASIC is a general-purpose computer programming language that is suited for:

- fast creation of computer programs to solve small nonrecurring problems, particularly on computers providing time-shared or interactive service;

- use when ease of learning and casual use are most important.

e. Exceptions to the applicability of approved standards for high level programming languages may be obtained through the waiver process, as described in paragraph 12.

10. Specifications. Federal Standard Minimal BASIC specifications are the language specifications contained in American National Standard for Minimal BASIC, X3.60-1978.

The Minimal BASIC ANS document specifies program syntax, formats of data for input and output, minimal precision and range of numeric representations for input and output, semantic rules for program interpretation, and errors and exceptional circumstances that must be detected by a standard-conforming BASIC language processor.

The Minimal BASIC document does not specify limits on the size of programs, minimum automatic data processing requirements, means of supervisory control of programs, or the means of transforming programs internally for processing. Although Minimal BASIC is primarily an interactive language, this standard does not restrict implementations to the interactive mode.

11. Implementation. The implementation of Federal Standard Minimal BASIC involves four areas of consideration: acquisition of Minimal BASIC processors; conformance to this standard; interpretation of Minimal BASIC; and use of Minimal BASIC.

11.1 Acquisition of Minimal BASIC Processors. The provisions of this publication are effective on September 4, 1980. All BASIC processors specified for Federal use after this date must implement Federal Standard Minimal BASIC. The requirements set forth in this paragraph are applicable to BASIC processors developed internally, acquired as part of an ADP system procurement, acquired by separate procurement, or used under an ADP leasing arrangement.

A transition period will provide time for industry to produce BASIC processors conforming to the standard. The transition period will begin on the effective date and will continue for eighteen (18) months thereafter. The policies for the acquisition of BASIC processors during the transition period are:

a. The provisions of this FIPS PUB will not apply to BASIC language processors or computing services ordered before the effective date.

b. The provisions of this FIPS PUB will apply to orders placed on or after the effective date; however, a BASIC language processor not conforming to this FIPS PUB may be acquired for interim use during the transition period. The standard-conforming processor must be delivered by the end of the transition period (eighteen (18) months from the effective date of this document).

11.2 Conformance to Federal Standard Minimal BASIC. A BASIC processor that conforms to Federal Standard Minimal BASIC must satisfy all of the requirements defined in American National Standard for Minimal BASIC, X3.60-1978. Special notice should be taken of section 1.4 of that document, which deals with conformance rules for processors.

The General Services Administration (GSA) has established the Federal Compiler Testing Center (FCTC) located at 5203 Leesburg Pike, Suite 1100, Falls Church, Virginia 22041 (703-756-6153) for the purpose of validating language processor conformance to this standard for Federal procurement, by means of a series of test programs. This service is offered on a reimbursable basis. The validation system reports the nature of any deviations that are detected.

Periodic changes will be required to the validation system in order to correct existing errors in the system, enhance test cases, and reflect official interpretations which affect this standard (see paragraph 11.3). In order to provide both currency and stability, new versions of the validation system will be introduced no more frequently than once per year. When a new validation system is introduced or changes are made to the existing validation system, the FCTC will make an announcement in the Federal Register, approximately six months prior to use of the system for official validation. The Federal Register notice will specify a comment period of at least 90 days. All comments and responses to the comments will be made available to the public prior to use of the new or modified system for official validations. Copies of the new or modified system will be available through the National Technical Information Service (see paragraph 13).

11.3 Interpretation of Federal Standard Minimal BASIC. NBS will provide for the resolution of questions regarding Federal Standard Minimal BASIC specifications and requirements and will issue official interpretations

using the procedures of FIPS PUB 29, as appropriate. All questions about the interpretation of Federal Standard Minimal BASIC should be addressed to:

Standards Administration Office
Institute for Computer Sciences and Technology
Room B-64, Technology Building
National Bureau of Standards
Washington, D.C. 20234

11.4 Use of Minimal BASIC. Federal Standard Minimal BASIC should be used as determined according to paragraph 9, Applicability. BASIC source programs, whether developed internally or on contract (including purchased or leased), should be limited to the elements of Federal Standard Minimal BASIC. Nonstandard language features should be used only when the needed operation or function cannot reasonably be implemented with the standard features alone. It should be recognized that the use of nonstandard language elements may make interchange of programs and future conversion to a replacement system or processor more difficult and costly. It is not intended that existing programs be rewritten solely for the purpose of conforming to the standard.

12. Waiver Process. Heads of agencies may request that the requirements of this standard for the acquisition of BASIC processors or for the applicability of standardized and approved high level programming languages be waived in instances where it can be clearly demonstrated that there are appreciable performance or cost advantages to be gained and that the overall interests of the Federal Government are best served by granting the requested waiver. Such waiver requests will be reviewed by and are subject to the approval of the Secretary of Commerce. The waiver request must address the criteria stated above as the justification for the waiver.

Forty-five days should be allowed for review and response by the Secretary of Commerce. Waiver requests shall be submitted to the Secretary of Commerce, Washington, D.C. 20230, and labeled as a Request for a Waiver to a Federal Information Processing Standard. No agency shall take any action to deviate from the standard prior to the receipt of a waiver approval from the Secretary of Commerce. No agency shall begin any process of implementation or acquisition of a nonconforming BASIC processor nor shall it make use of any nonstandard language unless it has already obtained such approval.

13. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161. (Sale of the included specifications document is by arrangement with the American National Standards Institute.) When ordering, refer to Federal Information Processing Standards Publication 68 (FIPS-PUB-68), and title. Payment may be made by check, money order, or deposit account.

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